Project Euler #27: Quadratic primes

This problem is a programming version of Problem 27 from projecteuler.net

Euler published the remarkable quadratic formula:

$$n^2 + n + 41$$

It turns out that the formula will produce 40 primes for the consecutive values n=0 to 39. However, when n=40, $40^2+40+41=40(40+1)+41$ is divisible by 41, and certainly when n=41, $41^2+41+41$ is clearly divisible by 41.

Using computers, the incredible formula $n^2 - 79n + 1601$ was discovered, which produces 80 primes for the consecutive values n = 0 to 79. The product of the coefficients, -79 and 1601, is -126479.

Considering quadratics of the form:

$$n^2 + an + b$$
, where $|a| \leq N$ and $|b| \leq N$

where |n| is the modulus/absolute value of n

e.g.
$$|11|=11$$
 and $|-4|=4$

Find the coefficients, a and b, for the quadratic expression that produces the maximum number of primes for consecutive values of n, starting with n=0.

Note For this challenge you can assume solution to be unique.

Input Format

The first line contains an integer N.

Output Format

Print the value of a and b separated by space.

Constraints

42 < N < 2000

Sample Input

42

Sample Output

-1 41

Explanation

for a=-1 and b=41, you get 42 primes.